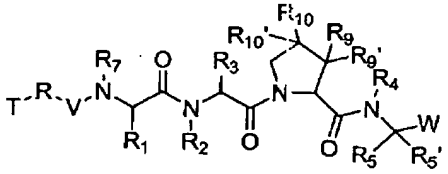
Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

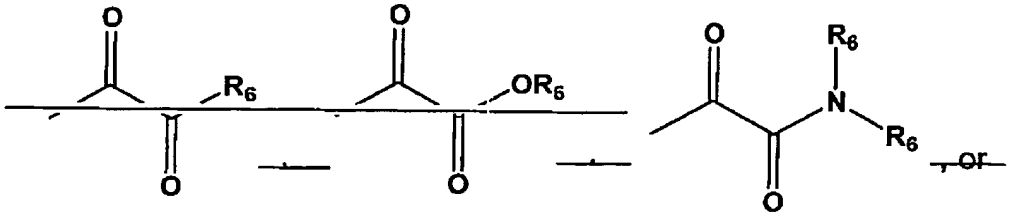
1. (currently amended) A compound of formula I:

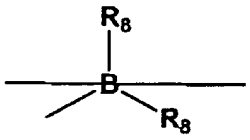


I

or a pharmaceutically acceptable salt, or mixtures thereof, wherein:

W is:





wherein each R_6 is independently:

hydrogen-,

(C1-C12)-aliphatic-,

(C6-C10)-aryl-,

(C6-C10)-aryl-(C1-C12)aliphatic-,

(C3-C10)-cycloalkyl- cr cycloalkenyl-,

[(C3-C10)-cycloalkyl- or cycloalkenyl]-(C1-C12)-aliphatic-,

(C3-C10)-heterocyclyl-,

(C3-C10)-heterocyclyl-(C1-C12)-aliphatic-,

(C5-C10)-heteroaryl-, or

(C5-C10)-heteroaryl-(C1-C12)-aliphatic-, or

wherein up to 3 aliphatic carbon atoms in each R_6 may be optionally replaced with S, -S(O)-, $-S(O)_2-$, -O-, -N-, or -N(H)- in a chemically stable arrangement;

wherein R_6 may be optionally substituted with up to 3 J substituents; or

two R_6 groups, together with the nitrogen atom to which they are bound, may optionally form a 5- to 6-membered aromatic or a 3- to 7-membered saturated or partially unsaturated ring system wherein up to 3 ring atoms may be optionally replaced with N, NH, O, S, SO, and SO_2, wherein said ring system may be optionally fused to a (C6-C10)aryl, (C5-C10)heteroaryl, (C3-C10)cycloalkyl, or a (C3-C10)heterocyclyl, wherein any ring has up to 3 substituents selected independently from J;

wherein each R_8 is independently -OR'; or the R_8 groups together with the boron atom, may optionally form a (C3-C10)-membered heterocyclic ring wherein each R_8 is independently -OR'; or the R_8 groups together with the boron atom, may optionally form a (C3-C10)-membered heterocyclic ring having, in addition to the boron, up to 3 ring atoms optionally replaced with N, NH, O, S, SO, and SO_2;

J is halogen, -OR', $-NO_2$, -CN, $-CF_3$, $-OCF_3$, -R', oxo, thioxo, =N(R'), =N(OR'), 1,2-methylenedioxy, 1,2-ethylenedioxy, $-N(R')_2$, -SR', -SOR', $-SO_2R'$, $-SO_2N(R')_2$, $-SO_3R'$, -C(O)R', -C(O)C(O)R', -C(O)C(O)OR', -C(O)C(O)NR', $-C(O)CH_2C(O)R'$, -C(S)R', -C(S)OR', -C(O)OR', -OC(O)R', $-C(O)N(R')_2$, $-OC(O)N(R')_2$, $-C(S)N(R')_2$, $-(CH_2)_{0-2}NHC(O)R'$, -N(R')N(R')COR', -N(R')N(R')C(O)OR', -N(R')N(R')CON(R')$_2$, $-N(R')SO_2R'$, $-N(R')SO_2N(R')_2$, -N(R')C(O)OR', -N(R')C(O)R', -N(R')C(S)R', -N(R')C(O)N(R')$_2$, -N(R')C(S)N(R')$_2$,

-N(COR')COR', -N(OR')R', -C(=NH)N(R')$_2$, -C(O)N(OR')R', -C(=NOR')R', -OP(O)(OR')$_2$, -P(O)(R')$_2$, -P(O)(OR')$_2$, or -P(O)(H)(OR'); wherein;

R' is independently selected from:

hydrogen-,

(C1-C12)-aliphatic-,

(C3-C10)-cycloalkyl- or -cycloalkenyl-,

[(C3-C10)-cycloalkyl or -cycloalkenyl]-(C1-C12)-aliphatic-,

(C6-C10)-aryl-,

(C6-C10)-aryl-(C1-C12)aliphatic-,

(C3-C10)-heterocyclyl-,

(C3-C10)-heterocyclyl-(C1-C12)aliphatic-,

(C5-C10)-heteroaryl-, and

(C5-C10)-heteroaryl-(C1-C12)-aliphatic-;

wherein up to 5 atoms in R' may be optionally and independently substituted with J;

wherein two R' groups bound to the same atom may optionally form a 5- to 6-membered aromatic or a 3- to 7-membered saturated or partially unsaturated ring system wherein up to 3 ring atoms may be optionally replaced with a heteroatom independently selected from N, NH, O, S, SO, and SO_2, wherein said ring system may be optionally fused to a (C6-C10)aryl, (C5-C10)heteroaryl, (C3-C10)cycloalkyl, or a (C3-C10)heterocyclyl, wherein any ring has up to 3 substituents selected independently from J;

R_5 and $R_{5'}$ are each independently hydrogen or (C1-C12)-aliphatic, wherein any hydrogen may be optionally replaced with halogen; wherein any terminal carbon atom of R_5 may be optionally substituted with sulfhydryl or hydroxy; or R_5 is Ph or -CH_2Ph and $R_{5'}$ is H, wherein said Ph or -CH_2Ph group may be optionally substituted with up to 3 substituents independently selected from J; or

R_5 and $R_{5'}$ together with the atom to which they are bound may optionally form a 3- to 6-membered saturated or partially unsaturated ring system wherein up to 2 ring atoms may be optionally replaced with N, NH, O, SO, or SO_2; wherein said ring system has up to 2 substituents selected independently from J;

R_2, R_4, and R_7 are each independently:

hydrogen-,

(C1-C12)-aliphatic-,

(C3-C10)-cycloalkyl-(C1-C12)-aliphatic-, or

(C6-C10)-aryl-(C1-C12)-aliphatic-;

wherein up to two aliphatic carbon atoms in each of R_2, R_4, and R_7 may be optionally replaced with S, -S(O)-, $-S(O)_2-$, -O-, -N-, or -N(H)- in a chemically stable arrangement;

wherein each of R_2, R_4, and R_7 may be independently and optionally substituted with up to 3 substituents independently selected from J;

R_1 and R_3 are each independently:

(C1-C12)-aliphatic-,

(C3-C10)-cycloalkyl- or -cycloalkenyl-,

[(C3-C10)-cycloalkyl- or -cycloalkenyl]-(C1-C12)-aliphatic-,

(C6-C10)-aryl-(C1-C12)aliphatic-, or

(C5-C10)-heteroaryl-(C1-C12)-aliphatic-;

wherein up to 3 aliphatic carbon atoms in each of R_1 and R_3 may be optionally replaced with S, -S(O)-, $-S(O)_2-$, -O-, -N-, or -N(H)- in a chemically stable arrangement;

wherein each of R_1 and R_3 may be independently and optionally substituted with up to 3 substituents independently selected from J;

R_9, R_{10}, and $R_{10'}$ are each H;

~~R_7, R_9, R_{10}, and $R_{10'}$ are each independently~~ is -X-Y-Z;

X is a bond~~, -C(H)(R_6)-, -O-, -S-, or -N(R_{11})-~~;

R_{11} is:

hydrogen-,

(C1-C12)-aliphatic-,

(C6-C10)-aryl-,

(C6-C10)-aryl-(C1-C12)aliphatic-,

(C3-C10)-cycloalkyl- or cycloalkenyl-,

[(C3-C10)-cycloalkyl- or cycloalkenyl]-(C1-C12)-aliphatic-,

(C3-C10)-heterocyclyl-,

(C3-C10)-heterocyclyl-(C1-C12)-aliphatic-,

(C5-C10)-heteroaryl-, or

(C5-C10)-heteroaryl-(C1-C12)-aliphatic-,

wherein up to 3 aliphatic carbon atoms in each R_{11} may be optionally replaced with S, -S(O)-, $-S(O)_2-$, -O-, -N-, or -N(H)- in a chemically stable arrangement;

wherein R_{11} may be optionally substituted with up to 3 J substituents; or

wherein R_{11} and Z together with the atoms to which they are bound, optionally form a nitrogen containing 5-7-membered mono- or 6-11-membered bicyclic ring system optionally substituted with up to 3 J substitutents, wherein up to 3 ring atoms in said ring system may be optionally replaced with O, NH, S, SO, or SO_2 in a chemically stable arrangement;

Y is a bond~~, $-CH_2-$, -C(O)-, -C(O)C(O)-, -S(O)-, $-S(O)_2-$, or $-S(O)(NR_{12})-$~~;

R_{12} is:

hydrogen-,

(C1-C12)-aliphatic-,

(C6-C10)-aryl-,

(C6-C10)-aryl-(C1-C12)aliphatic-,

(C3-C10)-cycloalkyl- or cycloalkenyl-,

[(C3-C10)-cycloalkyl- or cycloalkenyl]-(C1-C12)-aliphatic-,

(C3-C10)-heterocyclyl-,
(C3-C10)-heterocyclyl-(C1-C12)-aliphatic-,
(C5-C10)-heteroaryl-, or
(C5-C10)-heteroaryl-(C1-C12)-aliphatic-,

wherein up to 3 aliphatic carbon atoms in each R_{12} may be optionally replaced with S, -S(O)-, $-S(O)_2-$, -O-, -N-, or -N(H)-, in a chemically stable arrangement;

wherein R_{12} may be optionally substituted with up to 3 J substituents;

Z is:

~~hydrogen-,~~
(C1-C12)-aliphatic-,
(C3-C10)-cycloalkyl- or -cycloalkenyl-,
[(C3-C10)-cycloalkyl or -cycloalkenyl]-(C1-C12)-aliphatic-,
~~(C6-C10)-aryl-,~~
~~(C6-C10)-aryl-(C1-C12)aliphatic-,~~
~~(C3-C10)-heterocyclyl-,~~
~~(C3-C10)-heterocyclyl-(C1-C12)aliphatic-,~~
~~(C5-C10)-heteroaryl-, or~~
~~(C5-C10)-heteroaryl-(C1-C12)-aliphatic-~~;

wherein up to three aliphatic carbon atoms in Z may be optionally replaced with S, -S(O)-, $-S(O)_2-$, -O-, -N-, or -N(H)-, in a chemically stable arrangement;

wherein any ring may be optionally fused to a (C6-C10)aryl, (C5-C10)heteroaryl, (C3-C10)cycloalkyl, or (C3-C10)heterocyclyl;

wherein Z may be independently and optionally substituted with up to 3 substituents independently selected from J;

V is -C(O)-~~, -S(O)-, or $-S(O)_2-$~~;

R is ~~-C(O)-, -S(O)-, $-S(O)_2-$, $-N(R_{12})-$, -O-, or~~ a bond;

T is imidazolyl~~:~~

~~(C1-C12)-aliphatic-,~~

~~(C6-C10)-aryl-,~~

~~(C6-C10)-aryl-(C1-C12)aliphatic-,~~

~~(C3-C10)-cycloalkyl-or-cycloalkenyl-,~~

~~[(C3-C10)-cycloalkyl-or-cycloalkenyl]-(C1-C12)-aliphatic-,~~

~~(C3-C10)-heterocyclyl-,~~

~~(C3-C10)-heterocyclyl-(C1-C12)-aliphatic-,~~

~~(C5-C10)-heteroaryl-, or~~

~~(C5-C10)-heteroaryl-(C1-C12)-aliphatic-,~~

~~wherein up to 3 aliphatic carbon atoms in T may be replaced with S, -S(O)-, -S(O)$_2$-, -O-, -N-, or -N(H)-, in a chemically stable arrangement;~~

wherein ~~each~~ T may be optionally substituted with up to 3 J substituents; or

~~T is selected from -N(R_6)($R_{6'}$); and~~

~~$R_{6'}$ is~~

~~hydrogen-,~~

~~(C1-C12)-aliphatic-,~~

~~(C6-C10)-aryl-,~~

~~(C6-C10)-aryl-(C1-C12)aliphatic-,~~

~~(C3-C10)-cycloalkyl-or-cycloalkenyl-,~~

~~[(C3-C10)-cycloalkyl-or-cycloalkenyl]-(C1-C12)-aliphatic-,~~

~~(C3-C10)-heterocyclyl-,~~

~~(C3-C10)-heterocyclyl-(C1-C12)-aliphatic-,~~

~~(C5-C10)-heteroaryl-, or~~

~~(C5-C10)-heteroaryl-(C1-C12)-aliphatic-, or~~

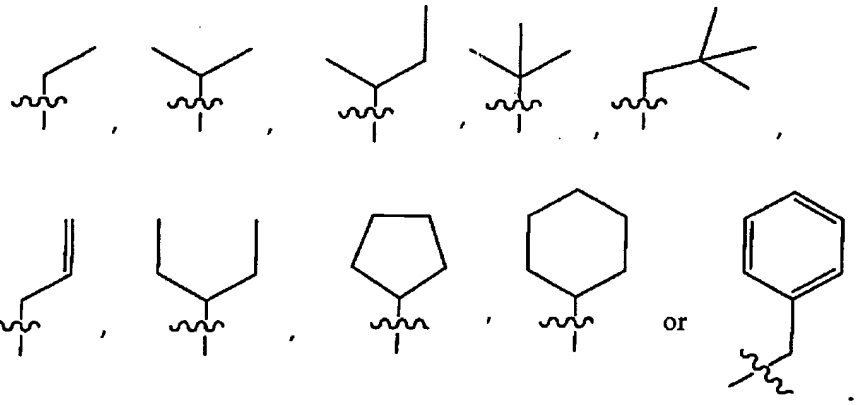
~~wherein up to 3 aliphatic carbon atoms in each $R_{6'}$ may be optionally replaced with S, -S(O)-, -S(O)$_2$-, -O-, -N-, or -N(H)- in a chemically stable arrangement;~~

~~wherein $R_{6'}$ may be optionally substituted with up to 3 J substituents; or~~

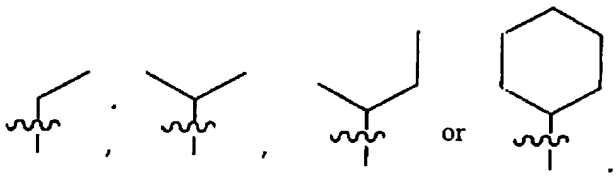
~~R_6 and $R_{6'}$, together with the nitrogen atom to which they are bound, may optionally form a (C3-C10) heterocyclic ring system wherein said ring system may be optionally substituted with up to 3 substituents independently selected from J.~~

2-4 (cancelled)

5. (currently amended) The compound according to claim 4_1, wherein R_9, is



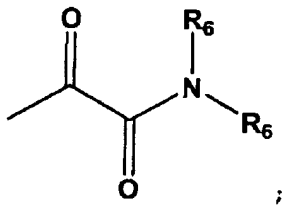
6. (original) The compound according to claim 5, wherein R_9, is



7. (original) The compound according to claim 6, wherein R_9, is
ethyl.

8-14 (cancelled)

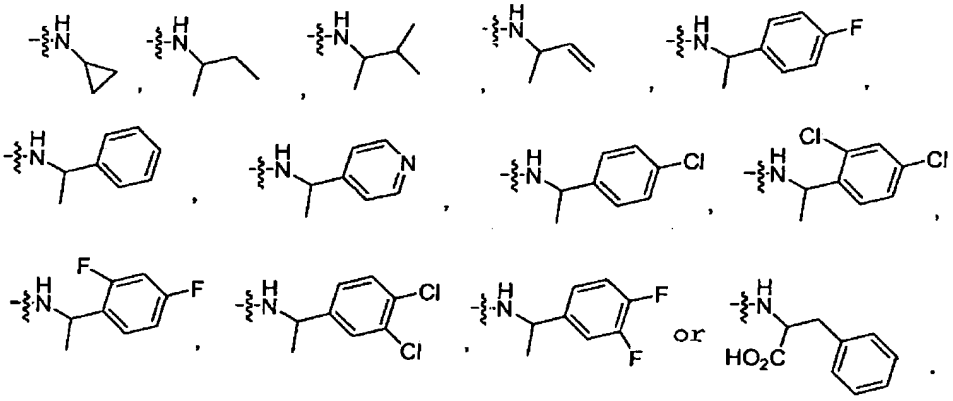
15. (original) The compound according to any one of claims 1-14, wherein W is:



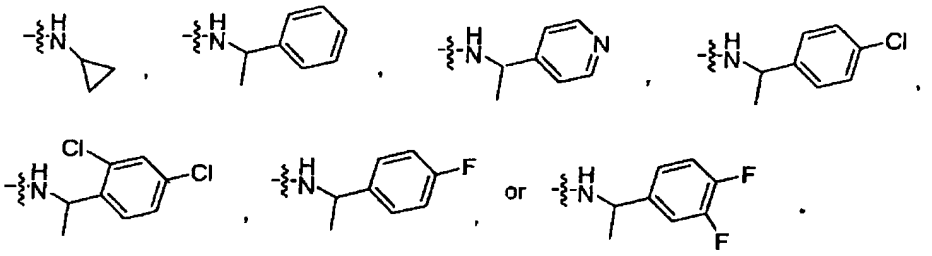
;

wherein in the W, the NR_6R_6 is selected from -NH-(C1-C6 aliphatic), -NH-(C3-C6 cycloalkyl), -NH-$CH(CH_3)$-aryl, or -NH-$CH(CH_3)$-heteroaryl, wherein said aryl or said heteroaryl is optionally substituted with up to 3 halogens.

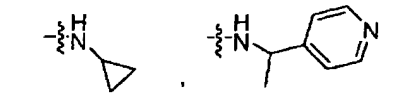
16. (original) The compound according to claim 15, wherein in the W, the NR_6R_6 is:

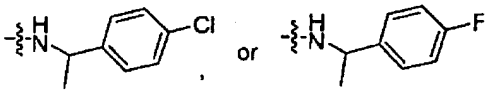


17. (original) The compound according to claim 16, wherein in the W, the NR_6R_6 is:

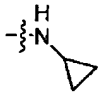


18. (original) The compound according to claim 17, wherein in the W, the NR_6R_6 is:

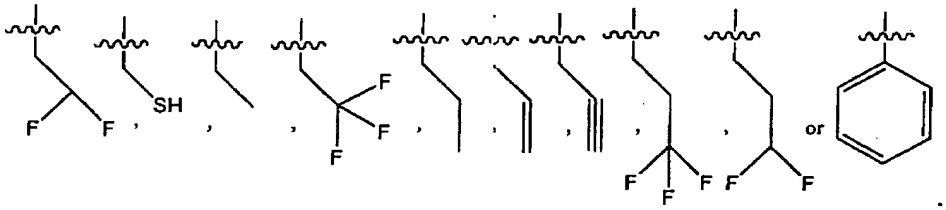




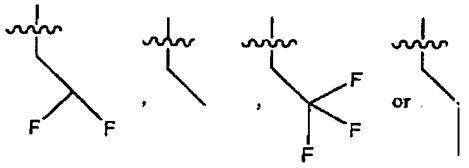
19. (original) The compound according to claim 18, wherein in the W, the NR_6R_6 is:



20. (previously presented) The compound according to claim 1, wherein R_5 is hydrogen and R_5 is:



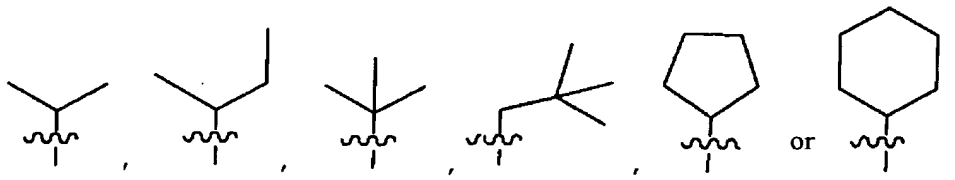
21. (original) The compound according to claim 20, wherein R_5 is hydrogen and R_5 is:



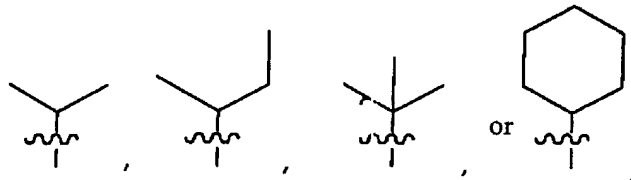
22. (previously presented) The compound according to claim 1, wherein R_2, R_4, and R_7 are each independently H, methyl, ethyl, or propyl.

23. (original) The compound according to claim 22, wherein R_2, R_4, and R_7 are each hydrogen.

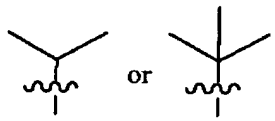
24. (previously presented) The compound according to claim 1, wherein R_3 is:



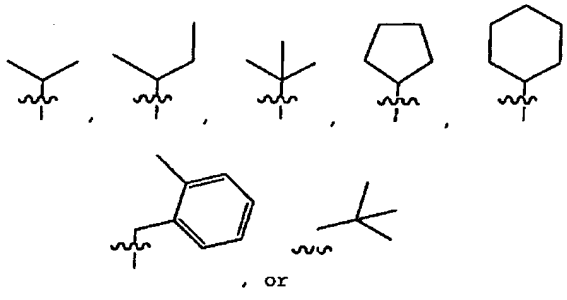
25. (original) The compound according to claim 24, wherein R_3 is:



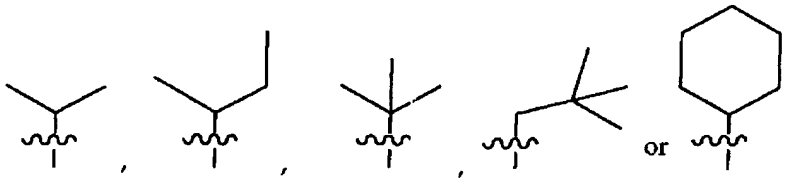
26. (original) The compound according to claim 25, wherein R_3 is:



27. (previously presented) The compound according to claim 1, wherein R_1 is:



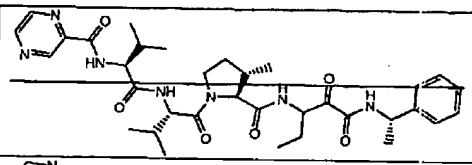
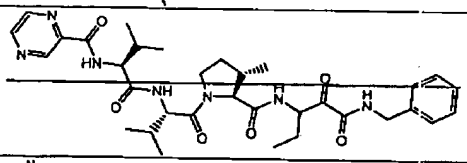
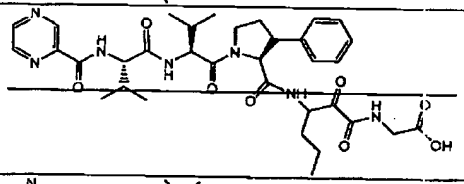
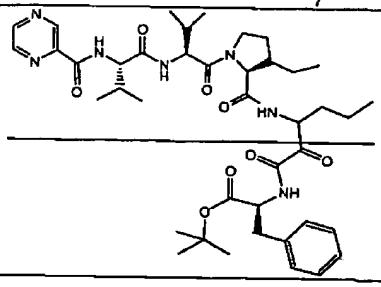
28. (original) The compound according to claim 27, wherein R_1 is:

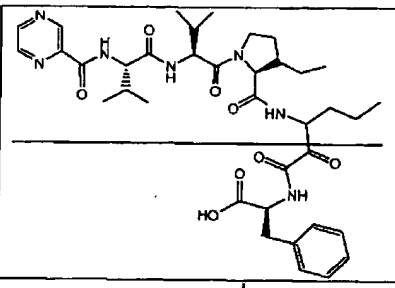
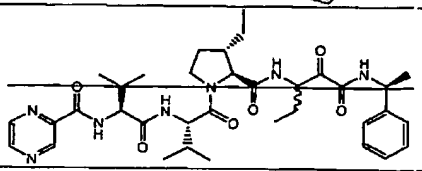
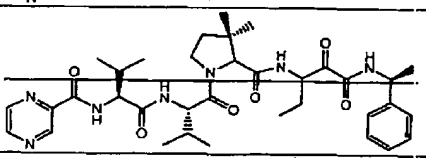
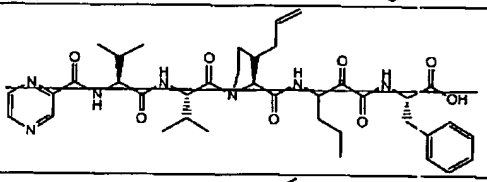
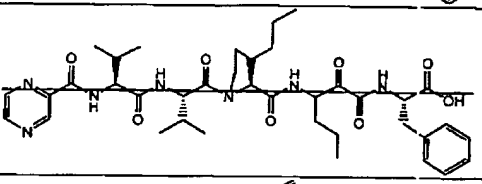
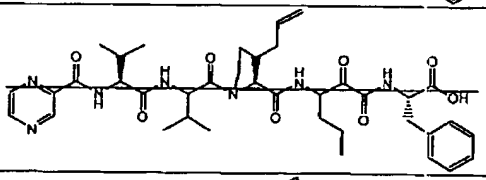
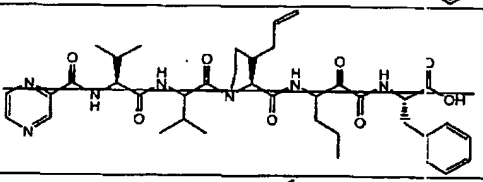
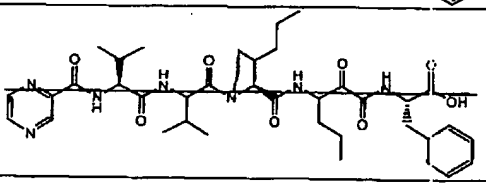


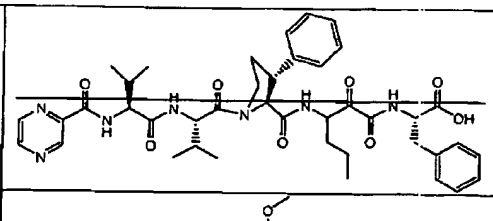
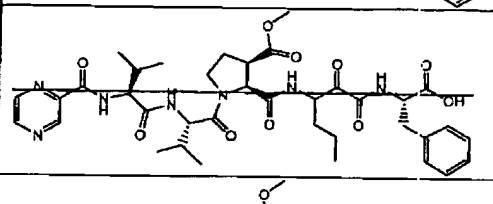
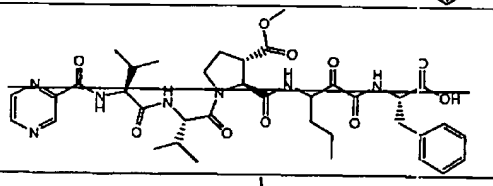
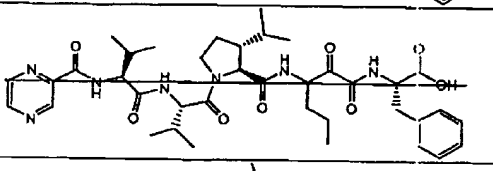
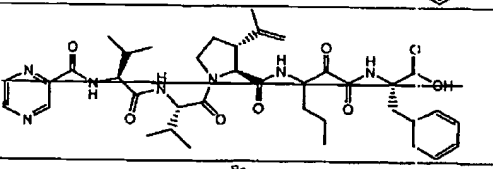
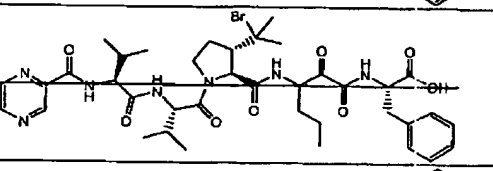
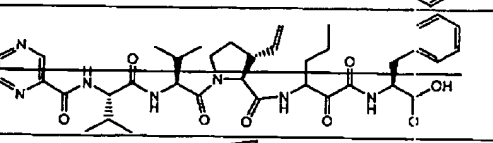
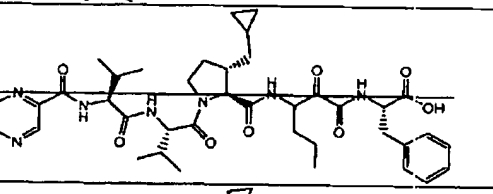
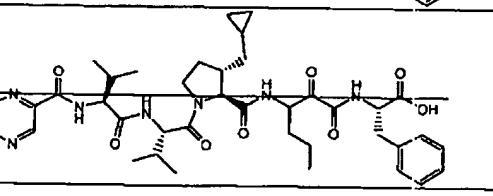
29. (original) The compound according to claim 18, wherein R_1 is isopropyl or cyclohexyl.

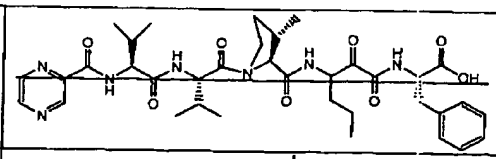
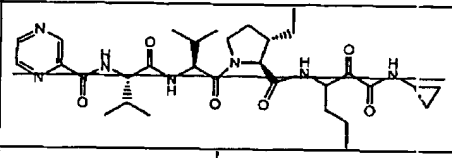
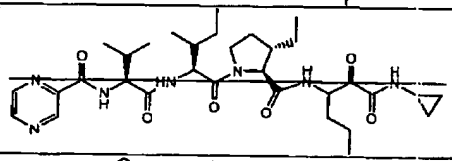
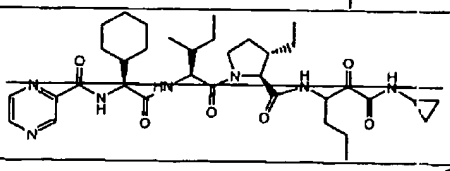
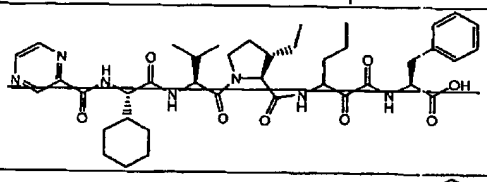
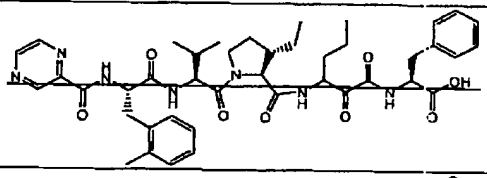
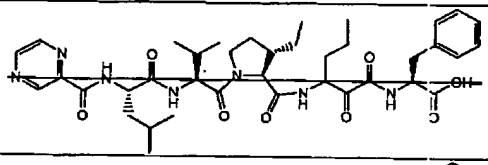
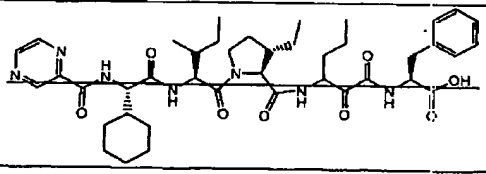
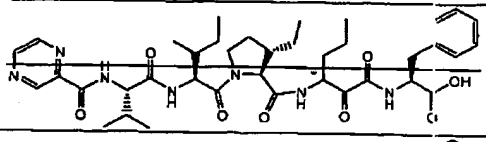
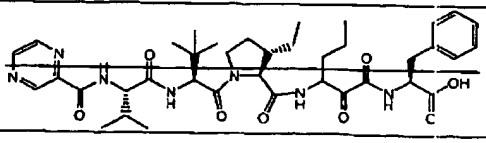
30-39 (cancelled)

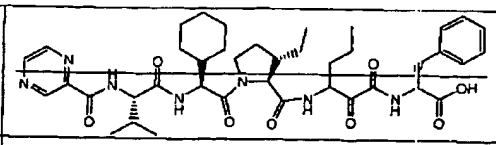
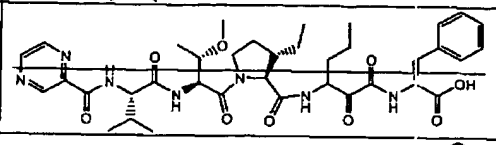
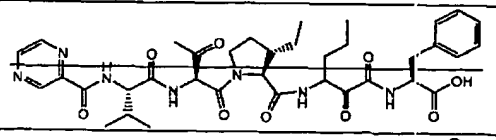
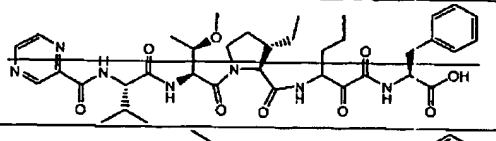
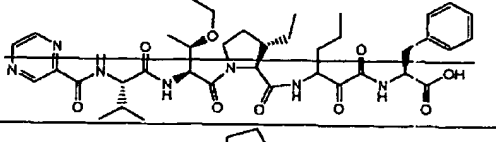
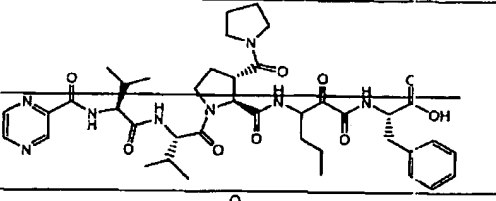
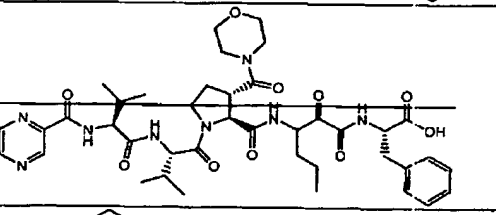
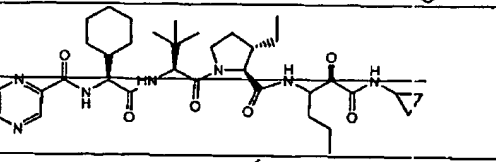
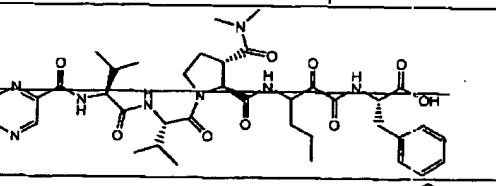
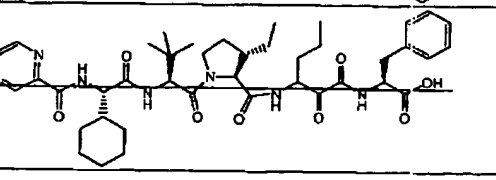
40. (currently amended) The compound according to claim 1, wherein the compound is:

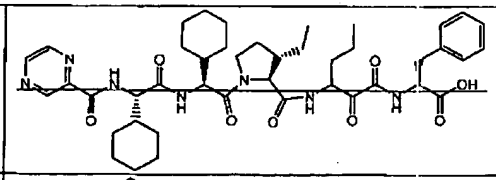
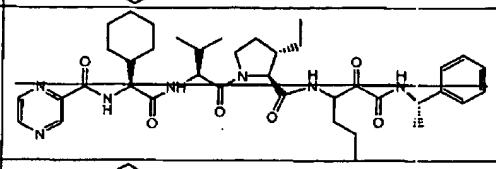
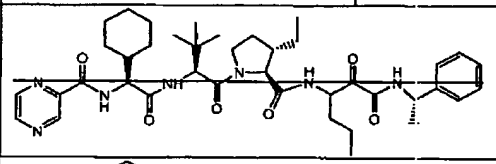
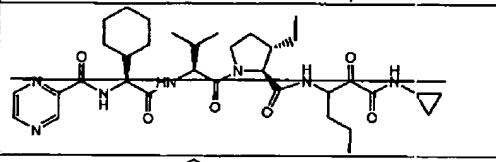
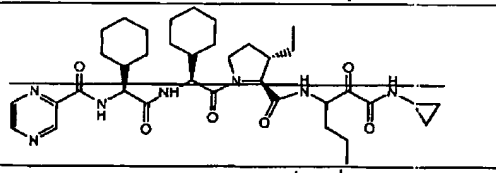
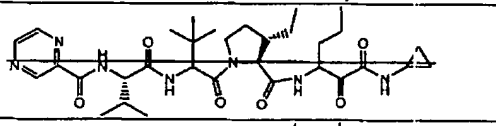
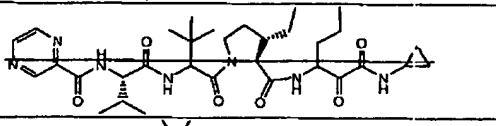
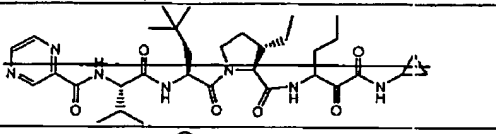
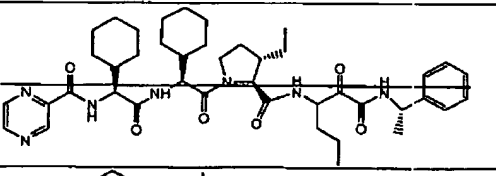
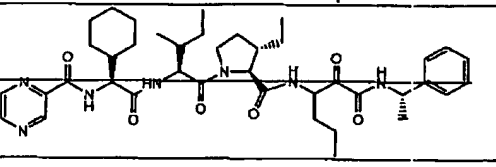
~~1~~	
~~2~~	
~~3~~	
~~4~~	

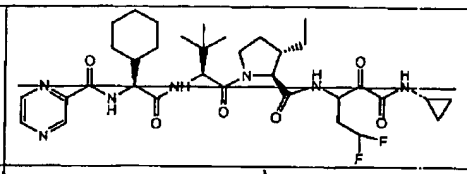
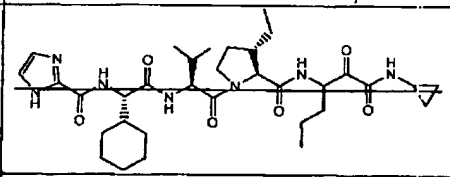
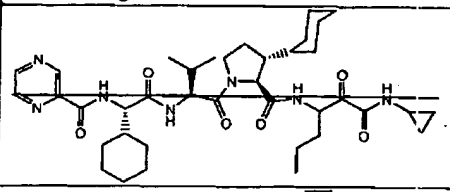
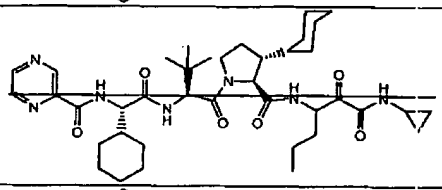
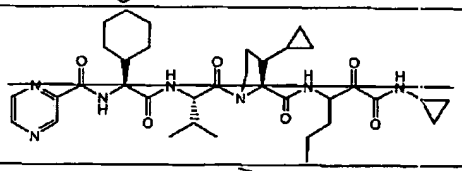
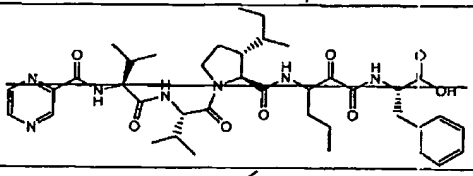
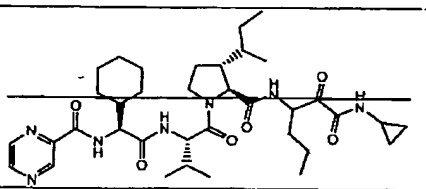
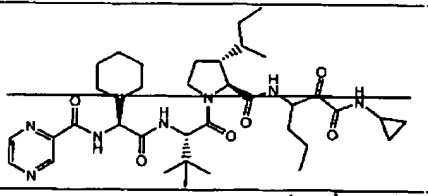
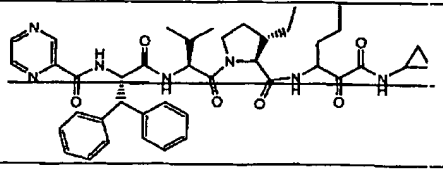
~~5~~	
~~6~~	
~~7~~	
~~8~~	
~~9~~	
~~10~~	
~~11~~	
~~12~~	

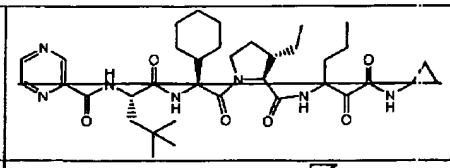
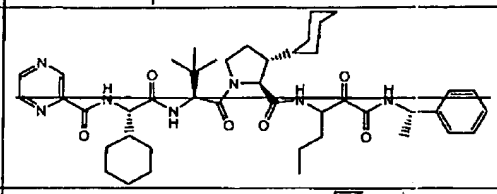
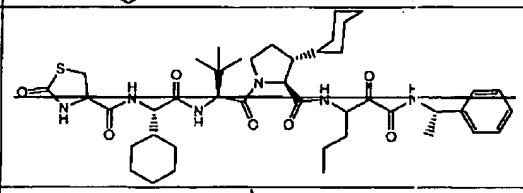
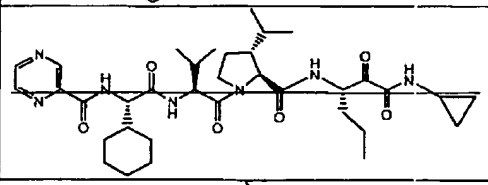
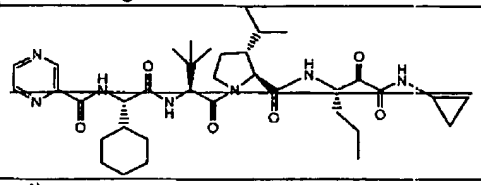
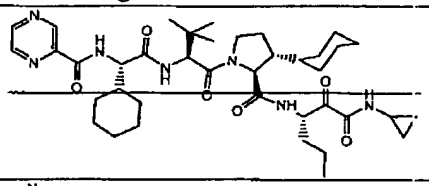
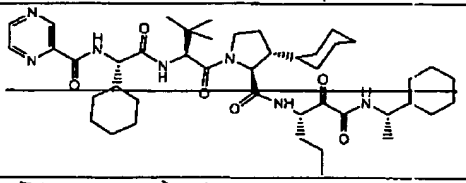
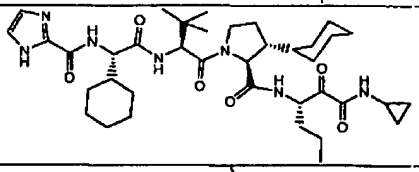
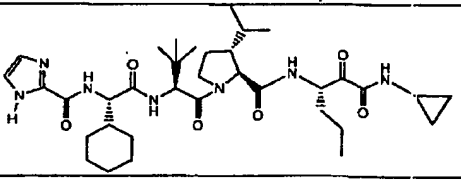
~~13~~	
~~14~~	
~~15~~	
~~16~~	
~~17~~	
~~18~~	
~~19~~	
~~20~~	
~~21~~	

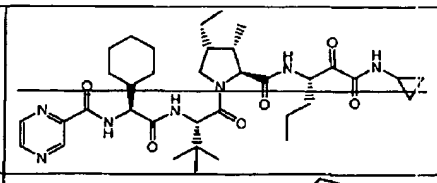
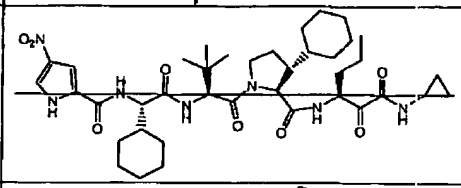
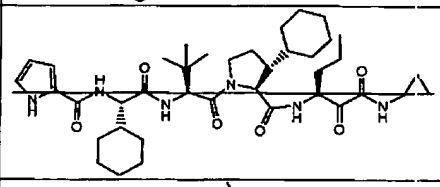
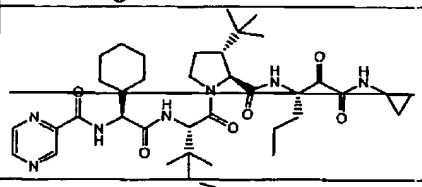
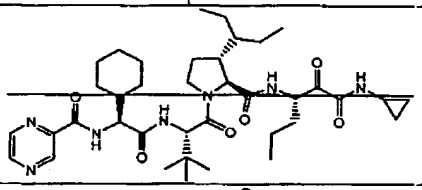
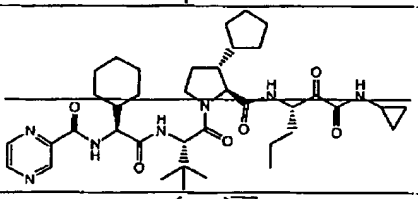
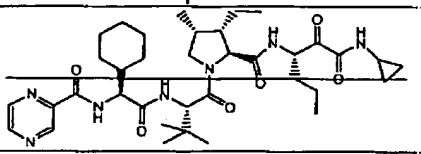
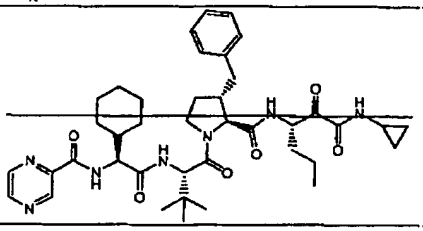
~~22~~	
~~23~~	
~~24~~	
~~25~~	
~~26~~	
~~27~~	
~~28~~	
~~29~~	
~~30~~	
~~31~~	

~~32~~	
~~33~~	
~~34~~	
~~35~~	
~~36~~	
~~37~~	
~~38~~	
~~39~~	
~~40~~	
~~41~~	

~~42~~	
~~43~~	
~~44~~	
~~45~~	
~~46~~	
~~47~~	
~~48~~	
~~49~~	
~~50~~	
~~51~~	

~~52~~	
~~53~~	
~~54~~	
~~55~~	
~~56~~	
~~57~~	
~~58~~	
~~59~~	
~~60~~	

~~61~~	
~~62~~	
~~63~~	
~~64~~	
~~65~~	
~~66~~	
~~67~~	
68	
69	

~~70~~	
~~71~~	
~~72~~	
~~73~~	
~~74~~	
~~75~~	
~~76~~	
~~77~~	

41. (previously presented) A pharmaceutical composition comprising a compound according to claim 1 or a

pharmaceutically acceptable salt or mixtures thereof in an amount effective to inhibit a serine protease; and a acceptable carrier, adjuvant or vehicle.

42. (original) The composition according to claim 41, wherein said composition is formulated for administration to a patient.

43. (original) The composition according to claim 42, wherein said composition comprises an additional agent selected from an immunomodulatory agent; an antiviral agent; a second inhibitor of HCV protease; an inhibitor of another target in the HCV life cycle; and a cytochrome P-450 inhibitor; or combinations thereof.

44. (original) The composition according to claim 41, wherein said immunomodulatory agent is α–, β–, or γ–interferon or thymosin; said antiviral agent is ribavirin, amantadine, or telbivudine; or said inhibitor of another target in the HCV life cycle is an inhibitor of HCV helicase, polymerase, or metalloprotease.

45. (original) The composition according to claim 43, wherein said cytochrome P-450 inhibitor is ritonavir.

46. (previously presented) A method of inhibiting the activity of a serine protease comprising the step of contacting said serine protease with a compound according to claims 1.

47. (original) The method according to claim 46, wherein said serine protease is an HCV NS3 protease.

48. (original) A method of treating an HCV infection in a patient comprising the step of administering to said patient a composition according to claim 42.

49. (original) The method according to claim 48, comprising the additional step of administering to said patient an additional agent selected from an immunomodulatory agent; an antiviral agent; a second inhibitor of HCV protease; an inhibitor of another target in the HCV life cycle; or combinations thereof; wherein said additional agent is administered to said patient as part of said composition according to claim 42 or as a separate dosage form.

50. (original) The method according to claim 49, wherein said immunomodulatory agent is α-, β-, or γ-interferon or thymosin; said antiviral agent is ribavarin or amantadine; or said inhibitor of another target in the HCV life cycle is an inhibitor of HCV helicase, polymerase, or metalloprotease.

51. (previously presented) A method of eliminating or reducing HCV contamination of a biological sample or medical or laboratory equipment, comprising the step of contacting said biological sample or medical or laboratory equipment with a composition according to claim 41.

52. (previously presented) The method according to claim 51, wherein said sample or equipment is selected from blood, other body fluids, biological tissue, a surgical instrument, a surgical garment, a laboratory instrument, a laboratory garment, a blood or other body fluid collection apparatus; a blood or other body fluid storage material.

53. (previously presented) The method according to claim 52, wherein said body fluid is blood.